CFAC / EPA Technical Meeting

Review of RI/FS Work Plan
CFAC Facility
October 7 and 8, 2015

Proposed RI/FS Work Plan Updates

- June 2015 Site Recon Summary
- Work Plan Clarifications
  - Additional Proposed Sampling
  - Sampling Analyses Modifications
  - Bedrock
  - Operational Area Grid Samples
- Field Work Logistics
- Recent Sampling Results

Recon Since RI/FS Work Plan

ROUX

- Two day recon event in June 2015
- Visited all Site features
- Will update RI/FS Work Plan based on findings
- Subsurface conditions beneath Main Plant Area
  - Tunnel
  - Basements
- West Landfill vents
- Additional historical document review

Sampling

ROUX

Additional Samples

- Soil sample at each deep well location collected 5-10 feet below the water table and analyzed for cyanide/fluoride
- Modeling parameters
  - Total Organic Carbon - each deep well location at each soil sample depth
  - Grain size – all sediment samples and select soil samples
  - Bulk density and moisture content – select soil samples

- Cathode Soaking Pit Borings/Samples

Sampling

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Pesticides

- Pesticides were proposed in all surface samples
- Historical records show no evidence of pesticide use at the Site
- CFAC proposes to reduce the amount of pesticide sampling during Phase 1

Herbicides

- Herbicides are actively sprayed by Flathead county and weed control is required by Flathead County Weed Control Program
- Herbicides not proposed – accidently included in tables of SAP and will be removed

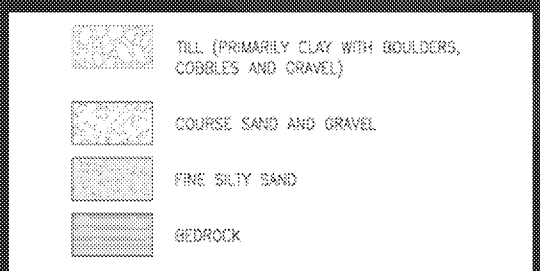
Bedrock

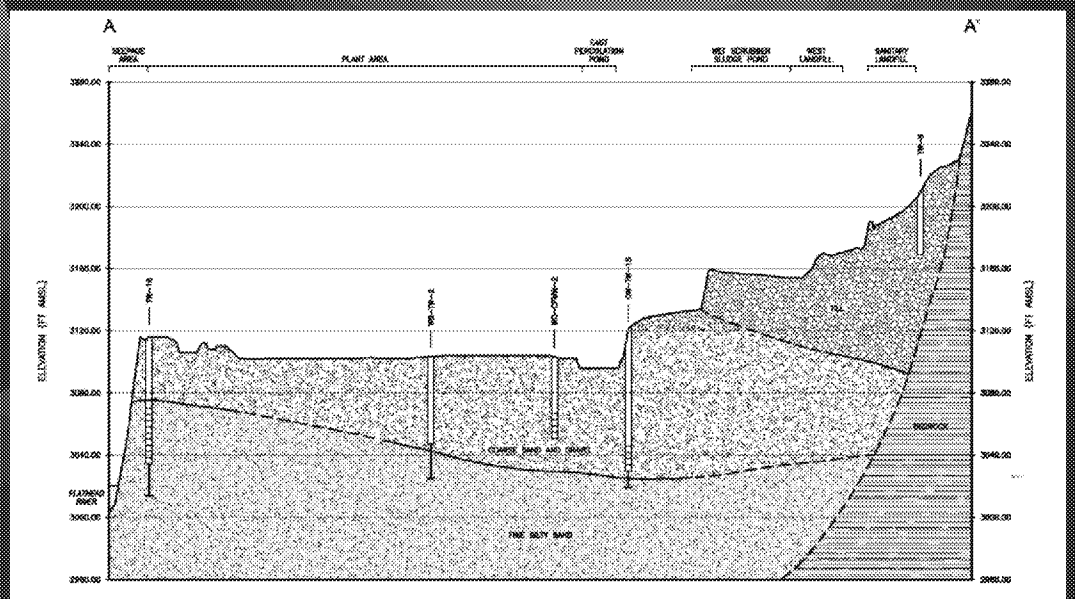
ROUX

- Preliminary Conceptual Site Model assumed bedrock may dip significantly away from Teakettle Mountain and could potentially reach depths of 400 ft or greater

- Some published literature suggests depths could be >1000 ft

- Deep wells were originally proposed to go to bedrock; intent was to not go deeper than 400 ft. In addition, borings may be terminated shallower based on lithology





Grid Sampling

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Drilling Logistics

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- Wet ground – Proposed locations within percolation ponds may be wet / unstable for positioning rig – may need to be completed with hand auger or shifted to dry areas
- Surface obstacles – Proposed locations may be shifted 50-100 ft to facilitate drill rig accessibility. Proposed locations will be evaluated during recon
- Subsurface conditions – Geoprobe was proposed for all soil borings other than well locations; anticipated that some locations may require use of sonic based on geology and difficult drilling conditions

Other Field Work Logistics

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- Geophysical
  - Scope to be determined with subcontractor
  - Initial objective to determine water depth, bedrock depth and potentially landfill depth/cap thicknesses
  - Scope may be refined based on initial results

Recent Sampling Results

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- Residential Well Sampling
  - Ten wells being monitored quarterly by CFAC
  - Five sampling events indicate no exceedances for COCs (three by EPA, two by CFAC)

- WET Testing of Seep discharge
  - Conducted quarterly for MPDES permit
  - Four sampling events indicate no exceedances

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EPA Requested Items for Discussion

1. New well locations, how selected, why, rationale and justification
2. Ownership of transformer yards/equipment, past incidents and clean up, what more future further investigation in the area is planned
3. Railway, any issues, what investigation is proposed
4. SPL landfill, overview, history/sampling & results, extent of known issues and plan for further investigation

New Monitoring Wells

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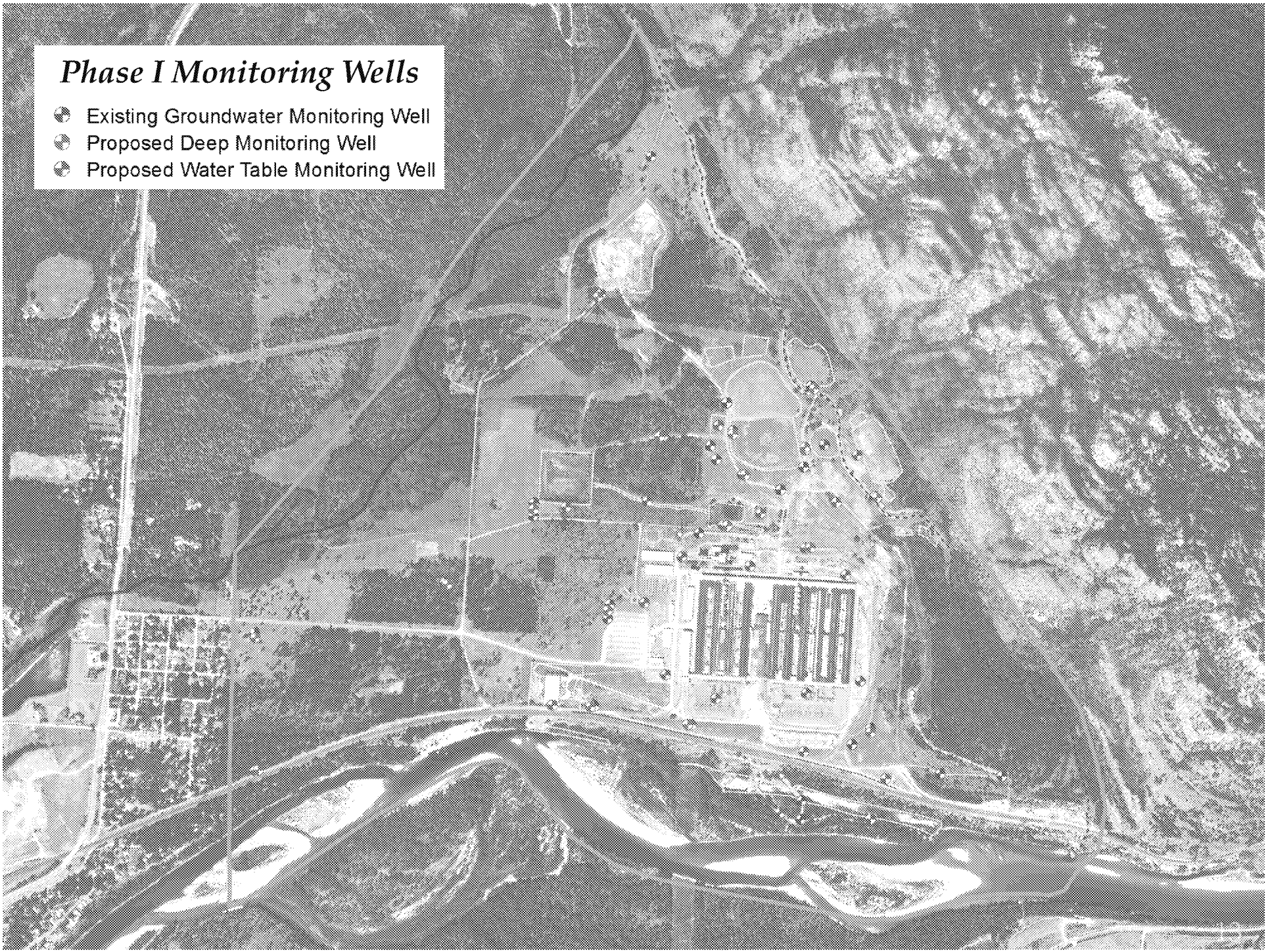
- In vicinity of, and down gradient of, site features
- In vicinity of, and up gradient of, potential receptors
- Establish well network sufficient to evaluate regional groundwater flow and initial assessment of deeper flow
  - 26 new water table monitoring wells – screened just below the water table
  - 17 new deep monitoring wells – to assess deep regional flow – screened interval tbd based on lithology
  - 25 existing wells to be utilized
- Table 1 of SAP includes column describing brief rationale for each location


Phase I Monitoring Wells
Existing Groundwater Monitoring Well
Proposed Deep Monitoring Well
Proposed Water Table Monitoring Well

Third-Party Property Ownership

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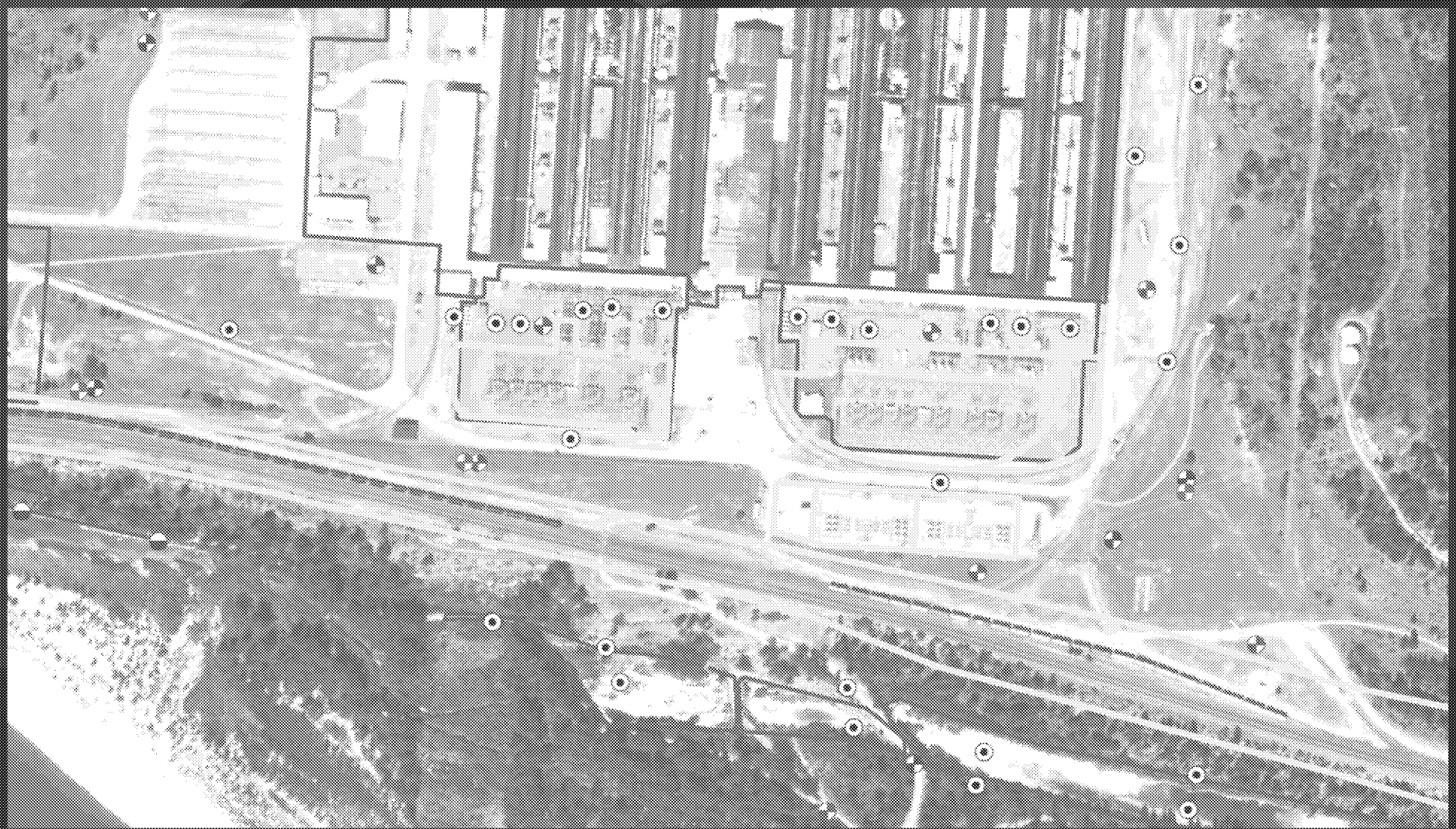
Proposed

ROUX

Revised

ROUX



Landfills

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Landfill History

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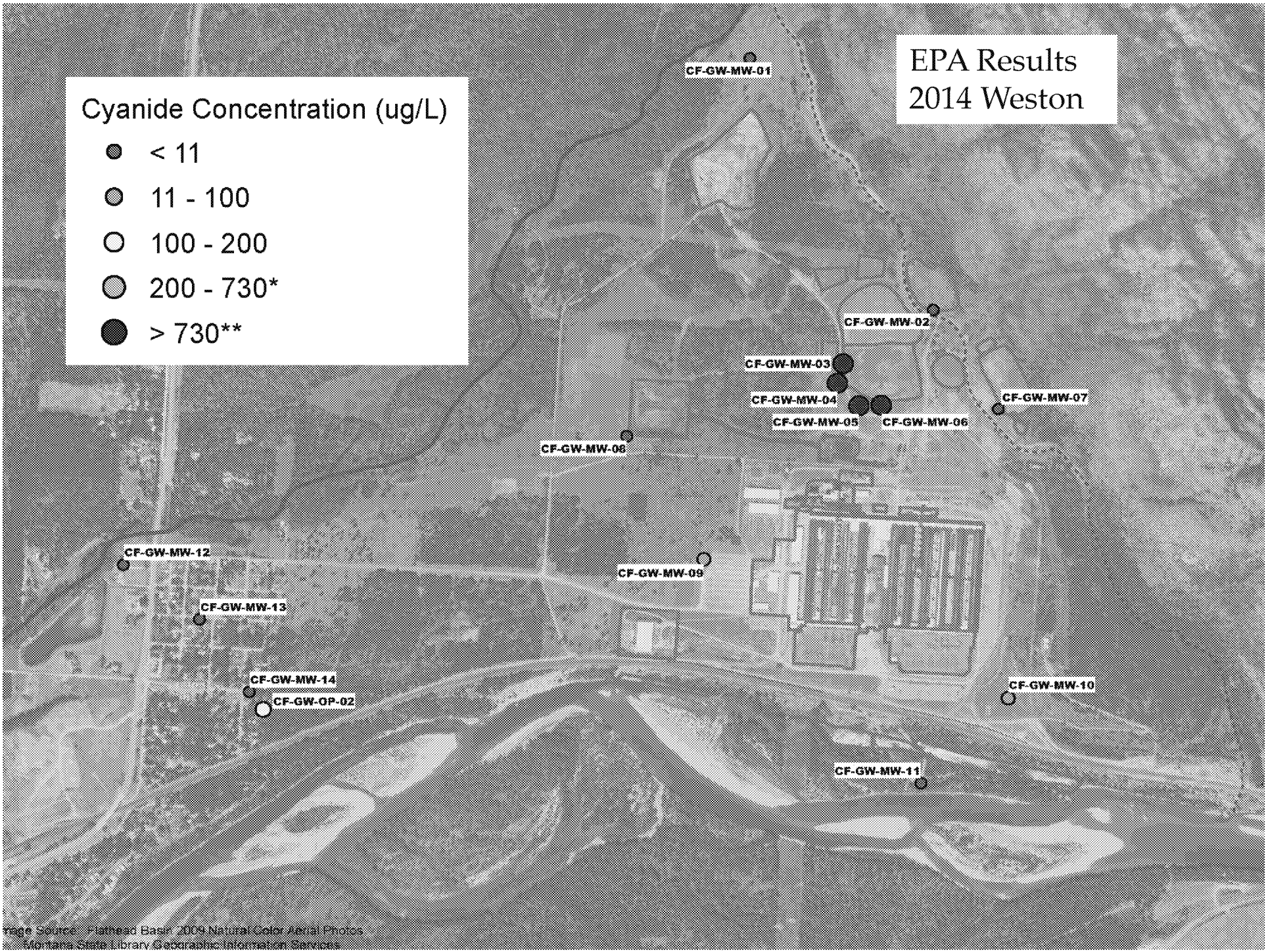
Landfill	Years of Operation	Construction	Type of Waste
West	1955 – 1981	Unlined Earth Cap 1981 Clay Cap 1992 Synthetic Cap 1994	SPL (1955-1970 only), sanitary, MSW, scrap (steel, wood, strapping, scrap from shops)
Center	1970 – 1980	Unlined Clay Cap	SPL, sanitary, scrap
East	1980 – 1990	Clay Liner Synthetic Cap	SPL (1980-1990)
Sanitary	1981 – 1982	Clay Liner Cap-type unknown	MSW, sanitary
Industrial	1970s – present	Unknown	Scrap metal, wood, MSW
Wet Scrubber Sludge Pond	1955 – 1980; 1994 – 1998	Unlined Earth Cap 1981	Sludge from wet scrubber (until 1976), spent potliner leachate (1994-1998 only)
Asbestos (Northern)	1980s-2009	Unknown	Asbestos
Asbestos (Southern)	1980s	Unknown	Asbestos


EPA Results
2014 Weston
Cyanide Concentration (ug/L)
< 11
11 - 100
100 - 200
200 - 730*
> 730**
CF-GW-MW-01
CF-GW-MW-02
CF-GW-MW-03
CF-GW-MW-04
CF-GW-MW-05
CF-GW-MW-06
CF-GW-MW-07
CF-GW-MW-08
CF-GW-MW-09
CF-GW-MW-10
CF-GW-MW-11
CF-GW-MW-12
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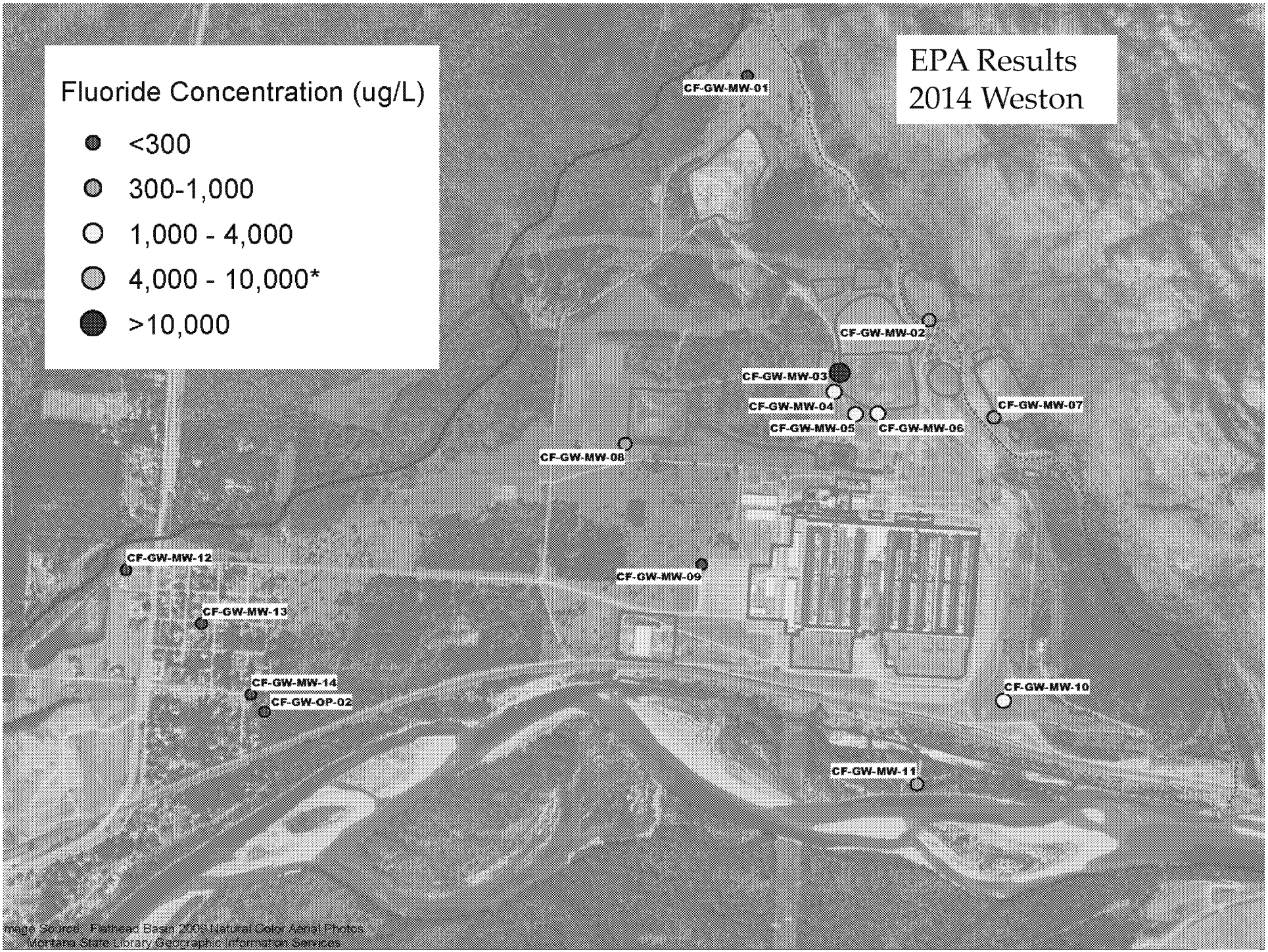
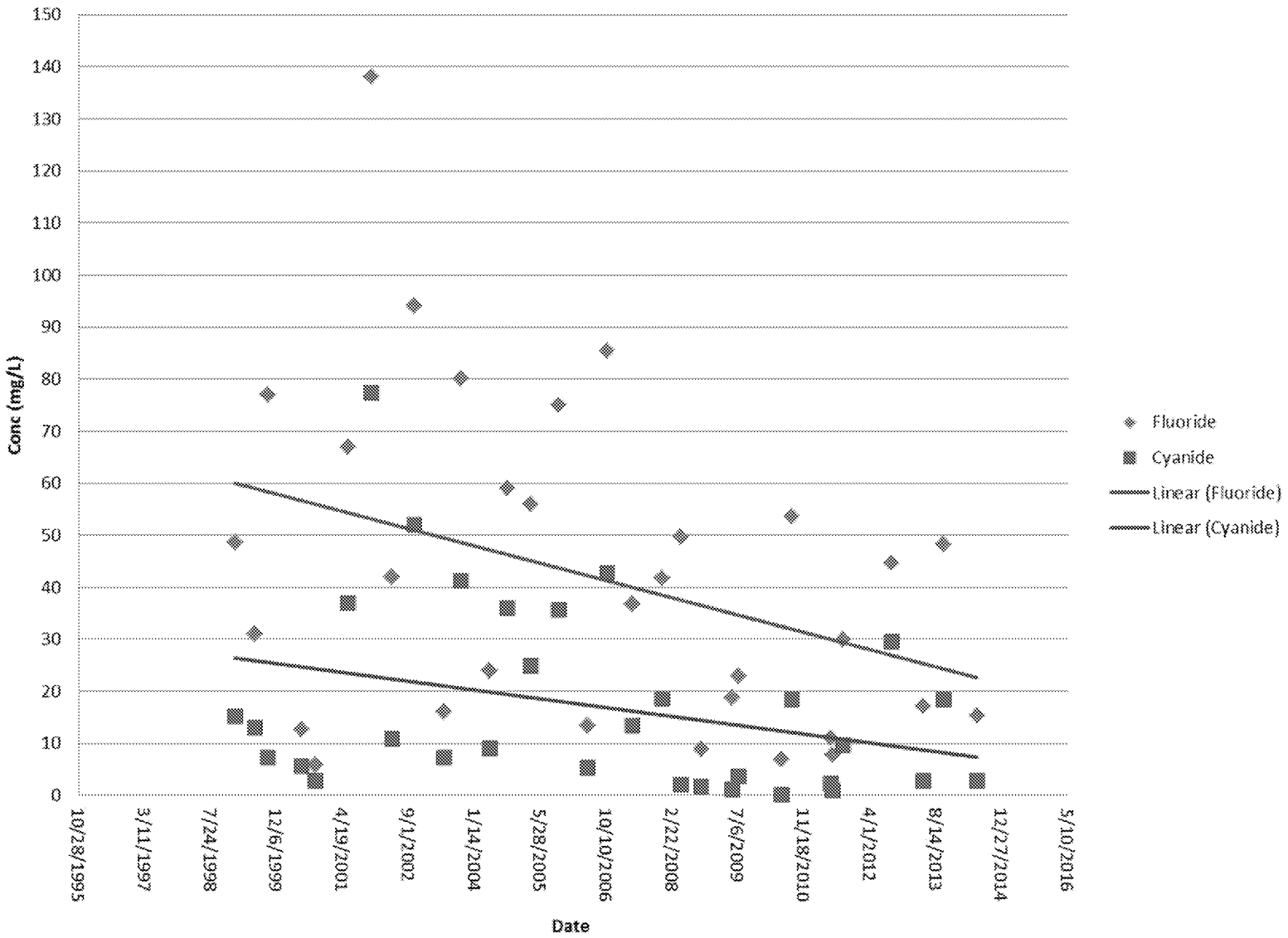
CF-GW-MW-14
CF-GW-OP-02
Montana State Library Geographic Information Services


Fluoride Concentration (ug/L)
<300
300-1,000
1,000 - 4,000
4,000 - 10,000*
>10,000
EPA Results
2014 Weston
CF-GW-MW-01
CF-GW-MW-02
CF-GW-MW-03
CF-GW-MW-04
CF-GW-MW-05
CF-GW-MW-06
CF-GW-MW-07
CF-GW-MW-08
CF-GW-MW-09
CF-GW-MW-10
CF-GW-MW-11
CF-GW-MW-12
CF-GW-MW-13
CF-GW-MW-14
CF-GW-OP-02
Image Source: Flathead Basin 2009 Natural Color Aerial Photos
Montana State Library Geographic Information Services

Monitoring Well W-11 – Near Wet Scrub/West Landfill

ROUX



Landfill / Source Area Investigation

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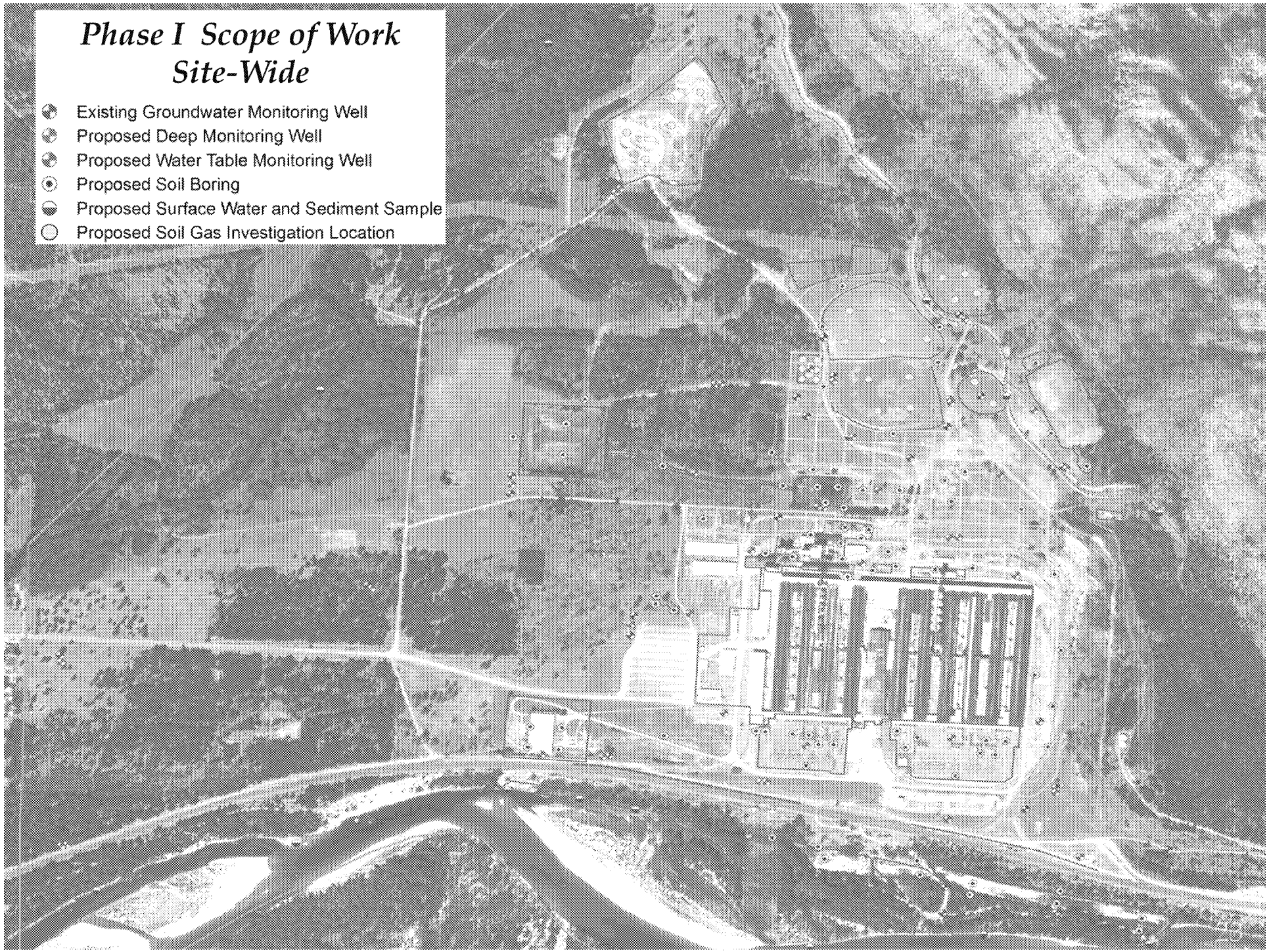
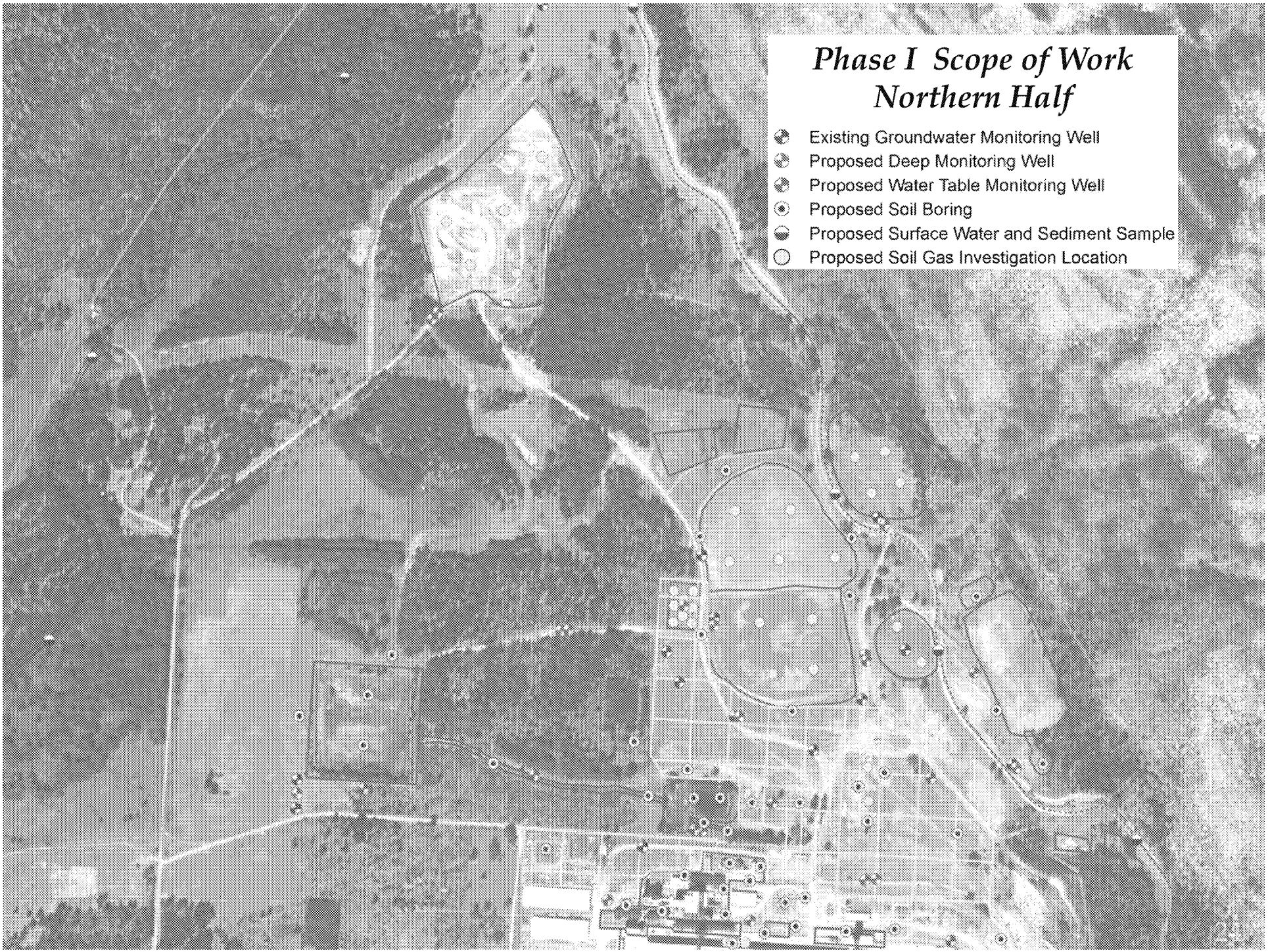
- Recon
- Landfill gas screening
- Geophysics
- Test pitting at Asbestos Landfills
- Completion of soil borings and installation of monitoring wells downgradient


Phase I Scope of Work
Site-Wide
Existing Groundwater Monitoring Well
Proposed Deep Monitoring Well
Proposed Water Table Monitoring Well
Proposed Soil Boring
Proposed Surface Water and Sediment Sample
Proposed Soil Gas Investigation Location


Phase I Scope of Work
Northern Half
Existing Groundwater Monitoring Well
Proposed Deep Monitoring Well
Proposed Water Table Monitoring Well
Proposed Soil Boring
Proposed Surface Water and Sediment Sample
Proposed Soil Gas Investigation Location